FINAL

LAKE COUNTY COMMUNITY HEALTH PROGRAM

2005 ANNUAL REPORT

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Prepared for:

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and

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EXECUTIVE SUMMARY

The Lake County Community Health Program (LCCHP) is the selected remedial action for Operable Unit 9 (OU9), Residential Populated Areas, of the California Gulch Superfund Site (the Site) (EPA, 1999). The LCCHP, also known as the Kids First Program, is an innovative remedial action intended to provide reduction in lead exposure from a wide range of potential sources for young children and pregnant or nursing women and thereby reduce blood lead levels in children who reside within the Site. The interim Kids First Program operated between May 1995 to June 2000, then expanded into the LCCHP and continues offering lead reduction services on a voluntary basis. Based on an evaluation of the program in accordance with the established performance standards, the remedial action objectives established by the EPA for OU9 have been met in 2005 for the entire site. This report summarizes the LCCHP activities during 2005, provides an update of the on-going progress of the program, and provides the details of the performance evaluation.

Program Overview

Lead is ubiquitous in the environment as a result of industrialization, and both children and adults can be exposed to lead from a number of different media (e.g., soil, dust, water, air, food, consumer products) and pathways (ingestion, dermal contact, inhalation). Children typically have higher intake rates per unit body weight of environmental media and tend to absorb a higher fraction of ingested lead from their gastrointestinal tract and be more susceptible to some of the adverse effects of lead than do adults. Exposure to lead via food, water and air has been significantly reduced in recent years as a result of federal regulation restricting or banning lead in solder, gasoline and paint (CDC, 1991). In Leadville, there are currently a number of pathways by which children may come into contact with lead originating from mining activities, including ingestion of mine wastes, dust, surface water and sediment, and ingestion of soil. Children may also be exposed to lead from non-mining sources in and around their homes, such as lead-based paint, water in contact with lead in plumbing components and occupational and hobby exposures.

The primary elements of the LCCHP are listed below:

- Community awareness and education programs;
- Voluntary blood lead monitoring with appropriate follow-up for young children (12 to 72 months) and pregnant and nursing women;
- Voluntary residential environmental testing for lead;

- Response actions to reduce the risk of lead exposure to children in Leadville and surrounding residential areas;
- High-efficiency particulate air filter (HEPA)-vacuum loan program; and
- Institutional Control Overlay district (ICO) to help ensure long-term effectiveness.

The entire LCCHP is funded by ASARCO Incorporated (Asarco) through a Trust Fund; the blood lead monitoring program is administered by the Lake County Health Department. The environmental sampling and response program was administered by Asarco until August 2005, at which time the environmental program was temporarily suspended due to funding issues associated with Asarco's bankruptcy filing. EPA resumed operations of the program on an interim basis in October 2005.

The overall goals, or remedial action objectives (RAOs), established for the LCCHP are related to the observed and predicted blood lead levels of children within the site, and read as follows:

RAO-1: No more than 5 percent of all children (ages 0 to 72 months) who live at this site, either now or in the future, will have blood lead values higher than 10 µg/dL.

RAO-2: No more than one percent of children (ages 0 to 72 months) who live at this site, either now or in the future, will have blood lead levels higher than 15 µg/dL.

In order to achieve the RAOs a specific set of performance standards were developed in 2002. Included as part of the Annual Report is a detailed evaluation of the performance of the LCCHP with respect to meeting the remedial action objectives.

Results from the blood lead monitoring and environmental testing programs are compared to established lead action levels, or trigger criteria. The trigger criteria for lead concentrations in each medium investigated are:

Blood Lead: greater than or equal to 10 µg/dL in children age 6 to 72 months and in pregnant and nursing women

Soil: greater than or equal to 3,500 mg/Kg

House Dust: greater than or equal to 2,000 mg/Kg

Interior or Exterior Paint: Interior or exterior paint in poor condition with lead concentration greater than or equal to 1 milligram/square centimeter (mg/cm^2) – education provided; with lead concentration greater than or equal to 6 mg/cm^2 – active remediation.

Tap Water: greater than or equal to 15 µg/L

When one or more of the trigger criteria is exceeded, a range of different response actions are evaluated by the LCCHP Work Group. All environmental and available blood lead data for a property are reviewed and the Work Group provides recommendations on the appropriate response actions, considering the preferences of the property owner and residents. No response actions are taken without the permission of the property owner and residents. The Work Group is made up of representatives from the Lake County Health Department, the Colorado Department of Public Health and Environment (CDPHE) and Asarco (until August 2005). The U. S. Environmental Protection Agency (EPA) provides oversight of the program and reviews and approves all response action recommendations of the Work Group.

For the purposes of evaluating data collected by the program, the site has been divided into subareas (sometimes referred to simply as areas) representing geographic areas of the site, which were perceived to have similar characteristics relative to potential lead exposures. These areas are identified as Areas A through G, with an additional Area H representing areas within Lake County but outside of the Superfund boundaries of OU9. These areas are identified on Figure 1-1. In addition, for the purposes of the performance standards evaluation described below, the Site has also been divided into what are referred to as Statistical Units. Statistical Unit 1 (SU1) includes the previously defined subareas A, B, D, and E, or the areas within the City of Leadville and Stringtown. Statistical Unit 2 (SU2) includes subareas C, F, and G, or the areas of West Park, Lake Fork Mobile Home Park and other outlying neighborhoods.

Additional Data Evaluation

As discussed more fully in Section 11, the Work Group had previously recommended that additional data evaluation efforts be undertaken to investigate concerns raised by the Independent Review Panel (IRP) in 2003, including the observation at the time that the calculated percentage of the participants with blood lead levels greater than 10 and 15 µg/dL (P10 and P15), respectively, had not significantly declined over time, particularly in Statistical Unit 1. The additional data evaluation effort was conducted and a meeting was held on February 2, 2006 to present the results.

The first step in the process was to conduct a screening level assessment of the correlation between paint (identified by the IRP as the possible dominant exposure that may be inhibiting the further decline of P10 and P15 values) and blood lead levels. In addition a more robust evaluation of all trends and paired data collected by the program was performed. A technical memorandum, summarizing the presentation, discussions and conclusions from this meeting, has been prepared and is included as Appendix F to this report. A summary of the main findings presented in the Technical Memo is provided in section 6.6 of the report.

Since the time of the IRP's review in 2003, the P10 and P15 values for SU1 have declined and in fact have now reached the levels established as the performance standards for the program to determine compliance with the Remedial Action Objectives.

Environmental Program

The environmental sampling and investigation program addresses lead from soil, dust, interior and exterior paint, leaded plumbing fixtures and other potential sources beyond an individual residence. Any resident or owner of a residential property within OU9 may request an investigation of lead levels in soil, dust, paint and drinking water at the property. During 2005, 94 properties entered the environmental program. The total number of properties entering the program to date (since 1995) is 848. Through the end of 2005, a total of 292 response actions (addressing a specific environmental media) have been performed at 234 properties. During 2005, 34 response actions were performed at 28 properties. A more detailed summary of the activities performed during 2005 and since 1995 by the Environmental Program are provided in Sections 2.0 and 3.0 of this Annual Report.

Education and Outreach

An extensive community awareness and education program to manage lead exposure at the site is an integral part of the LCCHP. The focus of the community awareness program is to raise general public awareness of potential risks from lead, especially risks to young children, and to encourage participation in the LCCHP. A summary of the educational and outreach elements of the program are described in Section 4.0. As described in this report, the program is continually trying to maintain and improve the educational materials provided and to extend the outreach efforts to target specific groups based on the evaluation of information collected by the program.

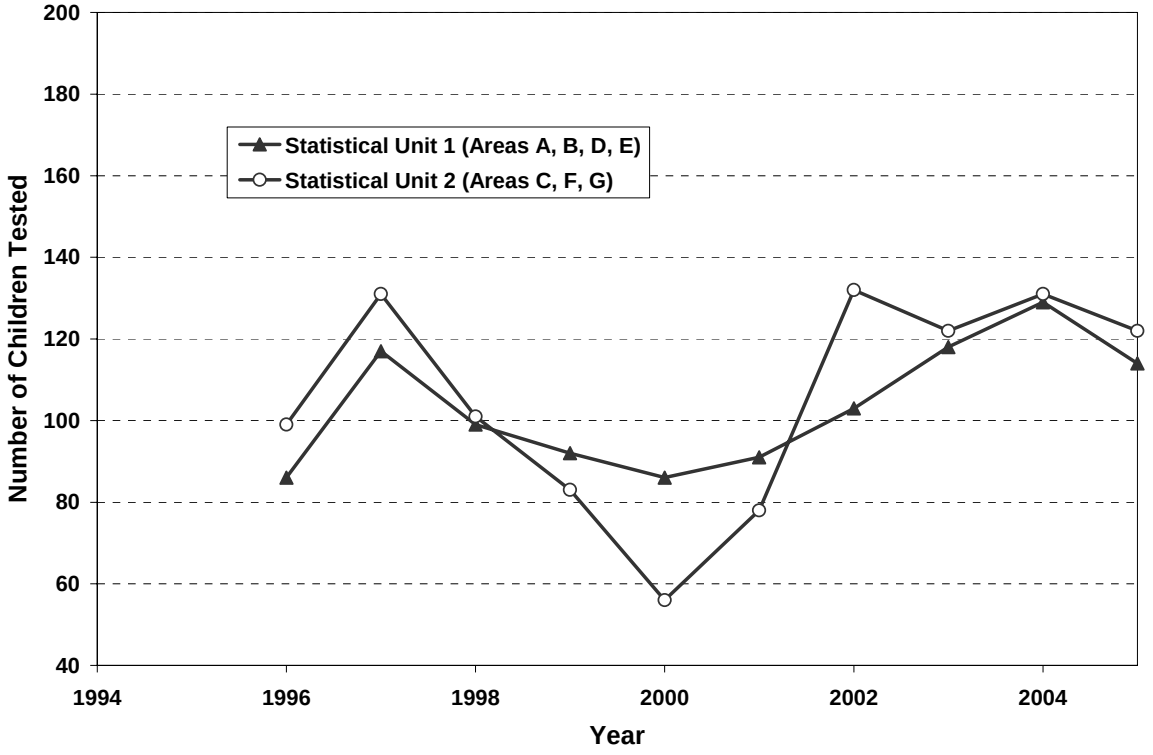
Blood Lead Monitoring Program

The LCCHP includes voluntary blood lead monitoring (with financial incentives, as appropriate) for all children age 12 to 72 months and voluntary blood lead monitoring for pregnant and nursing women. As discussed previously, the Lake County Health Department provides blood lead testing and follow-up case management services. The blood lead monitoring program is available to all Lake County residents, not just those residing within the Superfund boundaries. Because the overarching objective of the program is to reduce the blood lead levels of children within the Site, the presentation and evaluation of community blood lead levels is a primary focus of this report. In addition, participation, or the number

of children tested, is tracked closely by the program. The data collected by the blood lead monitoring program, in 2005 and previous years, are discussed in Section 6.0.

The program continues to enjoy good participation in the blood lead monitoring program. During 2005 the Lake County Health Department tested 412 children in Lake County. Two hundred-thirty six of these children live within the Site (OU9) and 83 of these children had their blood lead level tested for the first time. Figures ES-1 and ES-2 present the observed trends of program participation through 2005, broken down by Statistical Unit and new and returning participants for children living within the Site.

ES-1 Annual Participation Numbers for Young Children Residing within Statistical Units 1 and 2



ES-2. Annual Participation Numbers for Young Children Residing within OU9

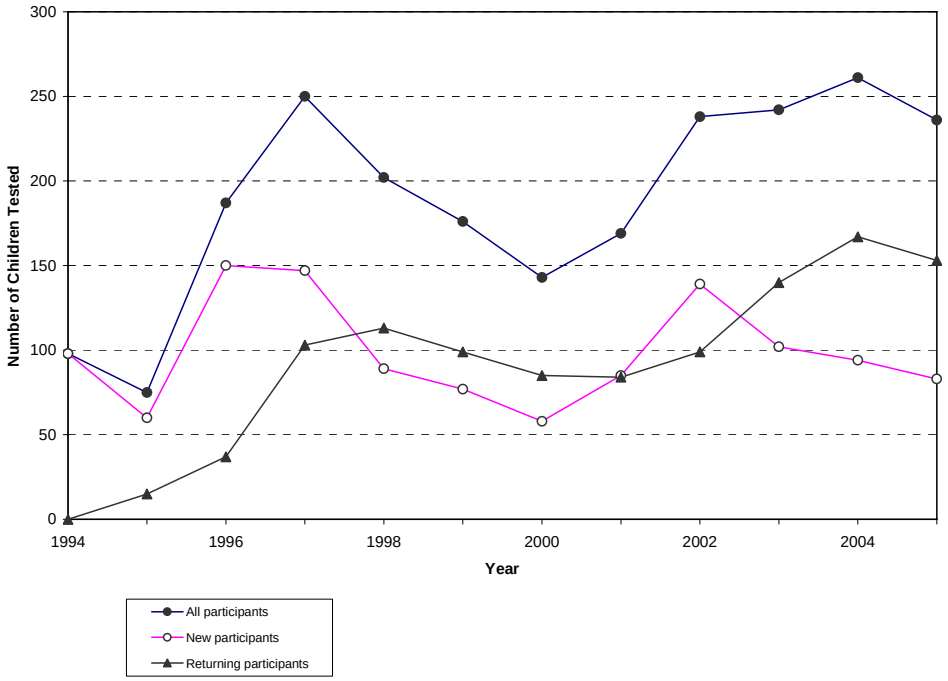
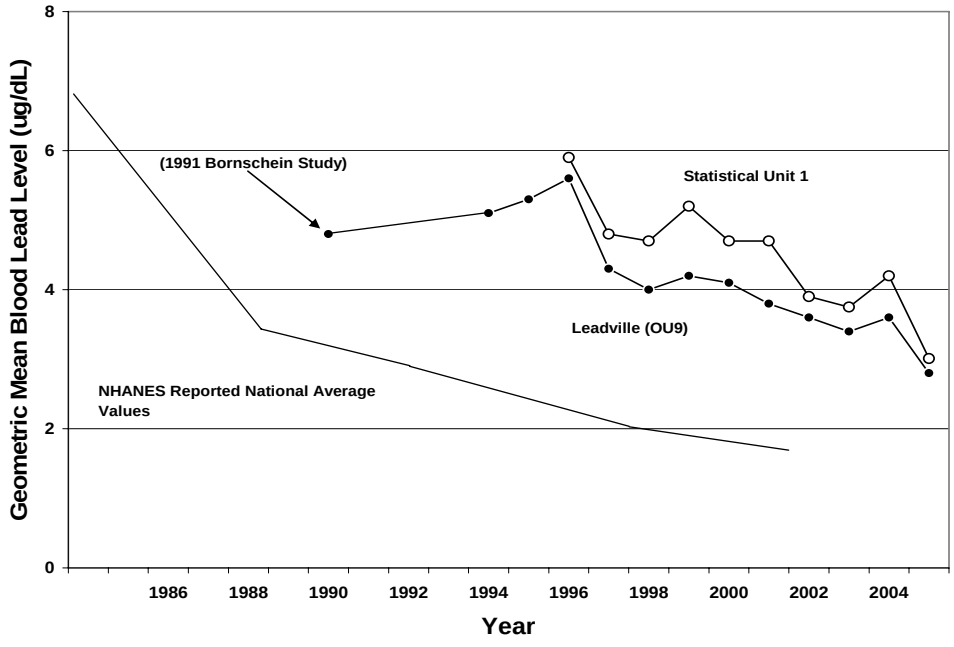


Figure ES-3 graphically displays community blood lead levels over time in the form of geometric mean blood lead levels for all children within the Site (OU9) and Statistical Unit 1, as well as the trend of reported national average blood lead levels in young children.

ES-3. 1994-2005 Geometric Mean Blood Lead over Time



Performance Standards Evaluation

A summary of the results of the performance standards evaluation is presented in Section 10.0, with supporting details provided as in Appendix E to this report. One of the performance standards established for the program is to test at least 360 children (180 from each Statistical Unit) over a three-year period, with at least 50% of the estimated number of newly eligible children, on average, tested each year. Although it is difficult to obtain an exact number of children under the age of six living within the site at any given time, the number has been estimated at 500. A newly eligible child means a child who is born and is residing in the site or a child age 0 to 72 months who moves into the site. The estimated number of newly eligible children in any given year is based upon data from the 2000 census, annual live-birth counts from the CDPHE, and the number of children enrolled in kindergarten each year. In general, the estimated number of newly eligible children over the last several years has varied between approximately 50 and 100. Over the past four years the number of children tested for the first time each year has exceeded the estimated number of newly eligible children within OU9.

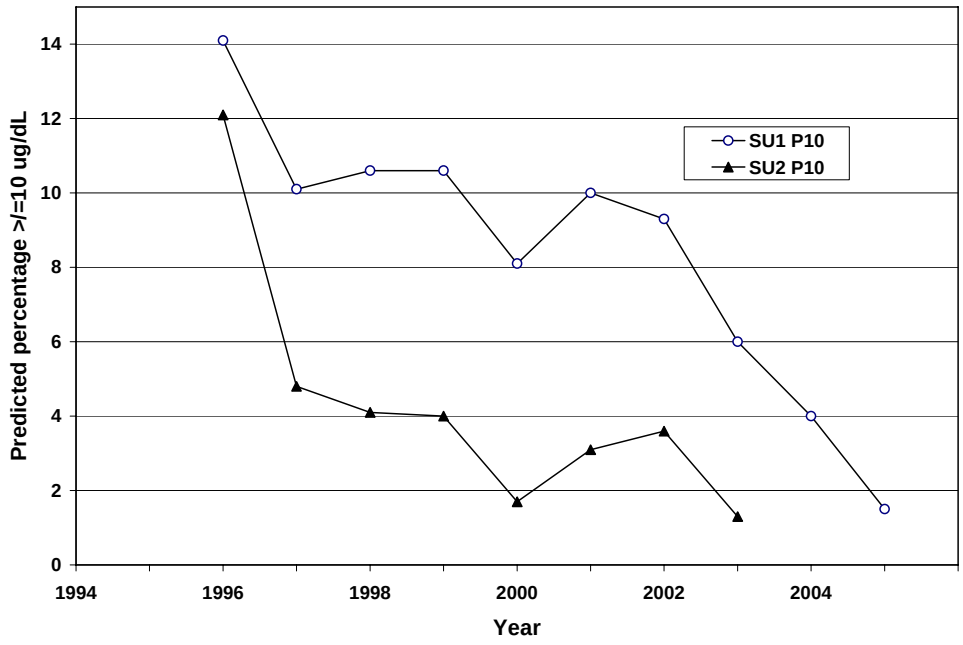
While the average blood lead levels of all tested children and participation in the program are important indicators of the success of the program, the performance of the program is evaluated, primarily, in terms of the number, or percentage, of children with blood lead levels over 10 µg/dL (considered elevated) and 15 µg/dL. Several unique terms were developed as part of the performance standards evaluation. The P10 refers to the percentage of children with blood lead levels above 10 µg/dL and the P15 refers to the percentage of children with blood lead levels above 15 µg/dL. These values are calculated by using a statistical model to predict the P10 and P15 values, but are based on the actual data from the program.

Each Statistical Unit must meet the performance standards individually. The goal is to achieve a P10 value, over a three-year period, of less than 5% and a P15 of less than 1%. Statistical Unit 2 met the performance standards in 2002, and therefore no additional evaluation is being performed. The program continues to offer services to residents of SU2 until both statistical units meet the performance standards. The trends in P10 and P15 values since 1994 are presented graphically in Figures ES-4 and ES-5, respectively. As indicated on these figures, the program observed a significant decline in the percentage of children with elevated blood lead levels since 2002 resulting in a downward trend in predicted blood lead levels.

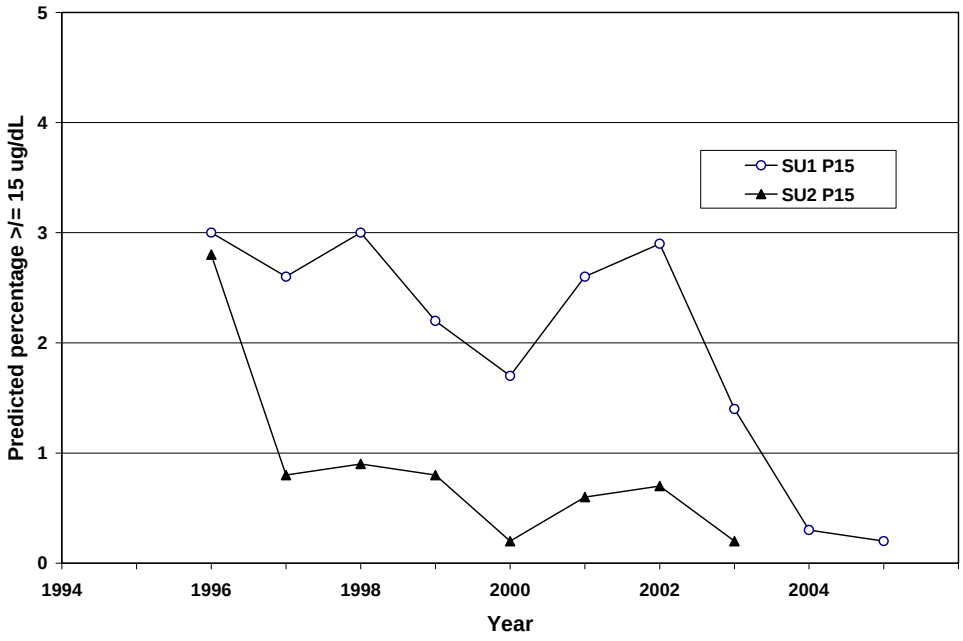
The 2005 P10 and P15 values for SU1 (the City of Leadville and Stringtown) were 1.5% and 0.2%, and for the three year period 2003-2005 4.2% and 0.8%, respectively. As illustrated on Figure ES-3, the 2005 single year P10 and P15are the lowest observed since beginning the Kids First Program in

1995. The three year combined values meet the performance standards for the site, thereby achieving the goals for the LCCHP as defined by the RAOs.

ES-4. Percentage of Children (0-6 years) Statistical Units with Blood Lead Level ≥ 10 µg/dL



ES-5. Percentage of Children (0-6 years) in Statistical Units with Blood Lead Level ≥ 15 µg/dL



With the publication of this Annual Report, the U.S. Environmental Protection Agency (EPA) has determined that the remedial action objectives established by the EPA for OU9 have been met for all residential areas of the site. A letter will be sent to all residents and property owners within the site, providing notification that June 9, 2006 will be the final deadline to request environmental testing at eligible properties within OU9.

After this final enrollment period, the LCCHP will transition into a modified lead risk reduction program designed to help maintain the progress made in reducing children's blood lead levels in Lake County. The modified program will likely continue the blood lead monitoring program for young children and pregnant and nursing women; provide education to minimize exposure to lead; and include investigations of properties with young children. A work plan is being developed to define the scope and specifics of the modified program and once the draft work plan is complete, EPA will announce a formal comment period to allow the public the opportunity to review and provide comments on the plan.

1.0 INTRODUCTION

The Lake County Community Health Program (LCCHP) is the selected remedial action for Operable Unit 9 (OU9), Residential Populated Areas, of the California Gulch Superfund Site (the Site) (EPA, 1999). The LCCHP, also known as the Kids First Program, is being implemented to reduce resident children's potential exposure to lead from various sources, including yard soil, house dust, interior house paint and exterior house paint and drinking water. The LCCHP provides a range of services, including environmental testing and remediation at residential properties and blood lead testing for young children, to assist residents in reducing their exposure to lead in and around their homes. A full description of the services offered by the LCCHP is included in the Work Plan for the LCCHP (Asarco, 1999). Owners and occupants of residences within OU9 (Figure 1-1) that were populated or zoned for residential use as of September 1, 1999, are eligible to participate in the LCCHP and receive the LCCHP's environmental and health services. LCCHP health services (blood lead testing and appropriate follow-up) are also available to all Lake County residents, including those residing outside of OU9. Participation in any aspect of the LCCHP is voluntary.

The LCCHP has been operating in accordance with the final Work Plan (Asarco, 1999), since June 2000. ASARCO Incorporated (Asarco) managed the LCCHP operations until filing bankruptcy in August 2005. EPA resumed operations of the program on an interim basis in October 2005. Oversight of these operations is provided by a technical working group, known as the LCCHP Work Group that includes representatives from the Colorado Department of Public Health and Environment (CDPHE), Lake County and Asarco (until August 2005). The LCCHP Work Group reviews all environmental data and released blood lead data then makes recommendations to the U.S. Environmental Protection Agency (EPA) for remedial actions at individual properties in accordance with the procedures detailed in the Work Plan. EPA approval is required for all remedial actions before they are considered final actions at a property.

Consistent with the Work Plan for the LCCHP, the LCCHP Work Group is responsible for providing EPA with an annual report to describe program implementation and results. MFG, Inc. has prepared this report with contributions and final approval from the LCCHP Work Group, to provide a description of the program's activities during the 2005 calendar year (January 1 through December 31, 2005).

2.0 ENVIRONMENTAL INVESTIGATION PROGRAM

During the 2005 calendar year, the LCCHP continued environmental investigations at residential properties within OU9. A total of 94 properties entered the environmental program during 2005. Seventy four properties entered into the program as a result of property owners or residents contacting the program including property owners of 31 undeveloped lots within the City of Leadville. Five entrants were referred to the program by the Lake County Health Department, 11 entered by a single property owner with multiple units and four entered through referrals from the Lake County Building Department. Twenty four of the properties entering the environmental program have young children or a pregnant or nursing woman residing at the property. A summary of the properties entering the LCCHP during 2005, by area, is provided in Table 2-1. Area X is the designation for properties that are within OU9, but not within one of the other designated areas, as specified in Figure 2-1.

Table 2-1. Properties Entering the LCCHP by Area in 2005

Area	Number Entering through Environmental Program/Multi-Properties/ICO	Number Referred by Lake County Health Department	Total Number of Properties Entering in 2005
A	24	0	24
B	9	0	9
C	2	1	3
D	49	4	53
E	1	0	1
F	1	0	1
G	3	0	3
X	0	0	0
Total	**89**	**5**	**94**

Statistical Unit 2 (SU2), which includes area C, F and G met the performance standards in 2002. Properties can still enter the program, but the program no longer actively recruits from these areas.

Properties are considered to have entered the Program and given a property identification number after they contact the program and an initial interview and survey is scheduled. Access for sampling was not obtained at four of the entering properties by the end of the calendar year. The following bullets describe the situations encountered for the properties where access was not obtained:

- At two properties, the resident at the property entered the program, but as of the end of 2005 the property owner had not responded to requests for access to conduct sampling.

- At one property, the initial interview and survey was scheduled but the appointment was not kept and the Program has been unable to reschedule.
- At one property, the owner entered through the ICO district but chose not to continue after the ICO was repealed.

Table 2-2 presents the number of properties where environmental investigations were performed during 2005, by media type sampled. Note that not all properties that entered the program during 2005 were sampled for all media during 2005 and that some of the properties that entered the program during previous years were investigated during 2005. In addition, not all media are sampled at every property depending on age of the structure and owner/resident preference. Soil samples were collected from 30 undeveloped lots in Areas B and D.

Table 2-2. Environmental Investigations Performed in 2005

Description	2005 Total
Soil	97
Interior Paint	25
Exterior Paint	28
Dust	32
Water	34

3.0 ENVIRONMENTAL REMEDIATION PROGRAM

Environmental remediation was performed at residential properties based on recommendations from the LCCHP Work Group and considering owner/resident preferences. Table 3-1 provides a remediation status summary by area. The number of properties entering the program, the number of completed remedial actions at the end of the calendar year, and a summary of the types of remediations performed (or media addressed) are presented for two different time periods: calendar year 2005 and totals for the program to-date from 1995 through 2005. In summary, a total of 34 actions were performed at 28 different properties during 2005.

In August 2005, Asarco filed for bankruptcy and funding for the program was disrupted, as discussed further in Section 8.0. As a result of this disruption, no remediation activities were conducted between August 10 and October 10, 2005. After funding was re-established through the EPA ten soil remediations were completed, but additional work was prohibited by the onset of winter weather.

Soil remediation was completed at 25 properties with the following Kids First Property ID Numbers: 012, 142, 423, 432, 492, 520, 533, 540, 547, 564, 567, 573, 617, 619, 622, 626, 647, 661, 684, 695, 709, 740, 805, 806 and 807. Soil remediation work for Kids First Property ID 806 was conducted by EPA. Interior paint remediation was completed at six properties with the following Kids First Property ID Numbers: 564, 600, 647, 683, 684 and 760. Dust remediation was completed at three properties with the following Kids First Property ID Numbers: 600, 647 and 760. No exterior paint or water remediations were conducted in 2005.

Table 3-1. 2005 Remediation Status by Area

		A	B	C	D	E	F	G	X	TOTAL
No. of Properties Entering Program		24	9	3	53	1	1	3	0	94
No. of Properties where Remedial Actions were performed in 2005		10	7	1	10	0	0	0	0	28
Remediations Completed by Type	Soil	10	5	1	9	0	0	0	0	25
	Dust	0	1	0	2	0	0	0	0	3
	Interior Paint	0	4	0	2	0	0	0	0	6
	Exterior Paint	0	0	0	0	0	0	0	0	0
	Water	0	0	0	0	0	0	0	0	0

Table 3-2. 1995-2005 Remediation Status by Area

		A	B	C	D	E	F	G	X	TOTAL
No. of Properties Entering Program		133	111	67	316	15	178	25	3	848
No. of Properties with Completed Remedial Actions		46	36	4	100	12	36	0	0	234
Remediations Completed by Type	Soil	42	22	2	95	13	35	0	0	208
	Dust	4	10	1	21	0	4	0	0	34
	Interior Paint	10	13	1	19	0	0	0	0	42
	Exterior Paint	1	2	0	1	0	0	0	0	4
	Water	0	1	0	2	0	2	0	0	4

Thirty five of the properties investigated during 2005 had no exceedances of the trigger criteria for any of the media investigated. Additional investigations were still pending at the end of the year or the LCCHP Work Group was still in the process of determining the recommended action at some of the properties entering the program in 2005. Because the program is a continually evolving process it is difficult to quantify the number of properties under each scenario at the year's end. As discussed in Section 2.0, some properties initially counted as 'entering' the Program did not continue through with environmental investigations. In some cases these properties may re-enter the program at a later date under new ownership or with different residents, or a property may re-enter the program when additional media are investigated. For example, residents in a mobile home park that has undergone soil investigation and remediation in a previous year, may contact the program for dust and water sampling the following year. This property would be counted as entering the program in each year, but would only be added to the cumulative total once. Table 3-2 attempts to maintain a count of the total number of properties that have entered the program and is adjusted each year so that properties are not counted twice in the cumulative totals. For this reason, the numbers totaled in previous years cannot always be simply added to the current year's totals.

During 2005, the LCCHP Work Group requested approval from the EPA of final remedial actions for 35 properties. A public review document prepared by the LCCHP Work Group was made available for public review and comment one time during the year, in May. This public review document presents the results of lead sampling at each property reviewed by the Work Group, the recommendations made by the Work Group, and where an action was recommended, presents a description of the response action(s). A 30-day review and comment period was announced through local newspaper advertisements and a public meeting was held on June 2, 2005. No comments were received during the public comment period. EPA approved all of the recommendations made by the LCCHP Work Group during 2005. Final remedial actions were approved on June 21, 2005 for Kids First Property Numbers: 116, 223, 398, 431,

451, 606, 678, 680, 696, 713, 714, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 739, 741, 742, 743, 745, 747 and 750. The LCCHP Work Group meetings were made public for environmental information in 2005. No comments were provided to the Work Group regarding recommendations discussed at the meetings. Public review documents will continue to be prepared to solicit public comments on Work Group recommendations.

4.0 EDUCATION AND COMMUNITY OUTREACH PROGRAM

The educational subcommittee from the LCCHP Work Group met on April 21, 2005 to continue implementation of recommendations for education and community outreach. Consistent with the objectives described in the Work Plan, the fundamental objective of the program's outreach efforts is to reach every eligible participant in the community to inform them of the program's services and encourage them to participate.

The following education and outreach materials were prepared during 2005:

- A Lake County blood lead program information flyer and a new flyer discussing lead in foreign candy. Copies of these items are provided in Appendix A.
- New newspaper advertisements.
- Two letters to encourage participation in the environmental program were developed during 2005, but neither letter was distributed. It was decided to use the letters, as needed, if and when participation began to decline. One letter targets families with young children and the other letter targets property owners in specific areas of the site.

The program assisted in the organization of the forth annual Children's Health & Safety Fair in collaboration with Early Childhood Connections/Child Find, the Lake County Health Department, Head Start, St. Vincent's Hospital, and Building A Generation and other community groups. The purpose of the fair was to expose parents/guardians of children ages 0-8 years old to groups and agencies that provide services to children in the community.

Approximately 274 children attended the fair, which was held on April 9, 2005. The LCCHP was represented by staff from both the blood lead monitoring and environmental portions of the Program. The Program featured an interactive display encouraging children to wash their hands. The information was presented both in Spanish and English. Magnetic picture frames were given to families at the end of the display. The LCCHP also provided logo book bags and water bottles to participants and volunteers to improve the visibility of the program within the community.

The environmental program participated in the first Assets Expo for Lake County in October. The Expo was held at the Mining Museum to provide businesses and groups a forum to display their services. The attendance was significantly better than expected and provided an opportunity to discuss the program with area residents.

In anticipation of the ICO district a public meeting, a press release and a fact sheet was developed to explain the new ordnance. The building department met with local realtors, the title company and local banks to explain the ICO. Local utilities were contacted and meetings were arranged to discuss the ICO and safe work practices.

Additional outreach efforts included:

- Distribution of the previously developed program brochures.
- Individual counseling with participants in the blood lead and environmental programs during face-to-face meetings.
- Coordination with other community agencies and programs providing services to families with young children (Social Services, WIC, Head Start, Medicaid, Early Childhood Council, Early Childhood Connections (Part C), Child Find (Part B))
- Presentations to community groups to provide an overview of the program and to discuss the program's progress.
- Public meeting to present the 2004 Annual Report.
- Provided brochures on lead risk reduction to daycare/preschool facilities.
- Bilingual newspaper advertisements and articles encouraging participation in the blood lead program and the environmental program.

Table 4-1, below, identifies the target groups set forth in the Work Plan and the outreach tools that have been developed and implemented to date for each group.

The Program continued to focus outreach efforts on families with young children with a secondary emphasis on the groups eligible to participate in the LCCHP, including residents without young children and all other property owners within OU9. The building department, land use office and local real estate offices continue to refer current and potential property owners to the Program. The educational subcommittee will convene in 2006 to discuss the direction for outreach efforts and begin the final notification process to residents within Statistical Unit 1 (SU1).

Table 4-1. 2005 Education and Outreach Program Summary

2005 Outreach Effort or Tool	Education and Outreach Target Group						Notes/Comments
	Property Owners in OU9	Families with young children and/or pregnant or nursing women	Residents/renters with OU9	Real estate agents and brokers	Construction contractors and tradespersons	Utility companies and their contractors	
Information flyer/foreign candy posters		X	X				Posted at the post office, preschools, health department, the middle school and local businesses.
Children's Health & Safety Fair		X					Attendance to 274 children
Asset Expo	X	X	X				Attendance of over 250 individuals
Picture Frames		X					Distributed to families at the Fair and through the Blood Lead Program
ICO fact sheet, public meeting and newspaper advertisements	X	X	X	X	X	X	
Bibs		X					Distributed to families with newborns
Building Dept. reference library with EPA/HUD brochures	X				X		
Coordinated with other agencies and groups		X					Coordination with Social Services, WIC, Head Start, Medicaid, Early Childhood Council, Early Childhood Connections (Part C), Child Find (Part B), Nurse Family Partnership, Private Daycare licensing and the Lake County Interagency Roundtable (LIAR).
Presentations to community groups		X					Continued targeting families with young children. Also reaching community leaders and agencies.
Public meeting for the 2004 Annual Report	X	X	X				
Information Packets for Head Start		X					Distributed 70 packets

Welcome brochure	X	X	X	X			Distributed through the environmental program and reality offices.
Lead Sources Brochure/Tips for Home Cleaning Brochure	X	X	X				Distributed to 94 families through environmental program
Individual counseling	X	X	X	X			
Brochures at preschools/daycare		X					
Newspaper advertisements	X	X	X				38 individual advertisements for the blood lead program and the environmental program.

5.0 HEPA VACUUM LOAN PROGRAM

The LCCHP currently has five commercial-grade HEPA vacuums and two residential-grade HEPA vacuums. The commercial-grade vacuums are available through the vacuum loan program to provide residents with access to high-quality vacuums for use when conducting remodeling work or a thorough cleaning of their home. The residential-grade vacuums are provided to residents at the direction of the LCCHP Work Group. HEPA vacuum loans do not constitute dust response action to address lead concentrations in dust above the program's trigger level.

During 2005, 19 different families checked out the commercial vacuums. The checkout duration varied from one day to one month and multiple times, depending on the resident's individual needs. The residential-grade vacuums are used for long-term loan to individual families. One family had long-term use of a residential-grade vacuum during 2005 to use while waiting for soil remediation and dust abatement response actions to be completed. There are no young children residing at the property.

6.0 BLOOD LEAD MONITORING PROGRAM

As part of the LCCHP, the Lake County Health Department provides blood lead testing and follow-up case management services to Lake County families with young children. The results from the 2005 blood-lead monitoring program are described in this section.

6.1 Participation

In 2005, 412 children between the ages of 6 and 72 months and residing in Lake County participated in the County blood lead monitoring program by receiving at least one blood lead test. Of those participants, 236 resided within the OU9 boundaries. Eighty-three (83) of the OU9 children were first-time participants in the blood lead monitoring program and 153 were returning for follow-up tests. There were also 59 first-time tested children from outside the OU9 area (Area H). Table 6-1 lists numbers of participating children by subarea, and Figure 6-1 maps the number of children participating from each subarea during 2005. Table 6-1a and 6-1b present participation numbers for the previous years, 2004 and 2003, respectively.

A total of 312 families participated in the blood lead program during 2005 by having one or more children tested for blood lead. A total of 373 savings bonds ($50 value each) and 304 gift certificates ($25 each) for Safeway® were distributed to these participating families as part of the incentive program for blood lead testing.

Table 6-1. 2005 Blood Lead Testing Program Participation (ages 6 to 72 months)

Numbers of Children Participating by Area

	OU9	A	B	C	D	E	F	G	X	H	**Total Lake County**
Total Participation	**236**	32	24	69	55	3	33	20	0	176	**412**
First Test in 2005	**83**	13	9	18	28	1	8	6	0	59	**142**

Table 6-1a. 2004 Blood Lead Testing Program Participation (ages 6 to 72 months)

Numbers of Children Participating by Area

	OU9	A	B	C	D	E	F	G	X	H	Total Lake County
Total Participation	**261**	32	20	84	72	5	35*	13	0	154	**415***
First Test in 2004	**94**	13	7	35	23	2	9	5	0	56	**150**

* Includes one child who was tested, but the result was not used when generating the statistic evaluations, see Section 6.3.

Table 6-1b. 2003 Blood Lead Testing Program Participation (ages 6 to 72 months)

Numbers of Children Participating by Area

	OU9	A	B	C	D	E	F	G	X	H	Total Lake County
Total Participation	**244**	25	21	77	70	3	33	13	2	145	**389***
First Test in 2003	**104**	13	8	35	29	1	11	5	2	63	**167**

* Includes two children who were tested, but the results were not used when generating the statistic evaluations, see Section 6.3.

6.2 Data Review and Compilation

The Lake County Health Department provides a year-to-date summary of blood lead test results to the LCCHP Work Group at each Work Group Meeting, as an automated function of their database. The purpose of this report is to assist the Work Group in tracking blood lead levels throughout the year. The Health Department's end of year summary for 2005 is included for reference as Appendix B to this report. Since the program is a continually evolving process, individual children's blood lead levels may vary throughout the year. The Health Department report tracks all children in the blood lead program, and may include children whose blood lead data is excluded from blood lead statistical summaries presented in this Annual Report. Data may be excluded either because a child's blood lead level was believed to be the result of lead exposure prior to moving to the area, or because the source of their blood lead was identificied as being outside of the control of the LCCHP. For 2005, no children had blood lead data excluded from the blood lead summaries presented in this report.

A series of additional data review and compilation steps were followed to provide the working data set for this report's evaluation of community blood lead levels (BLLs) during 2005. These steps,

provided below, are consistent with the procedures developed by EPA in 1997 (Brattin, 1997) and adopted for general use by the Kids First Program (predecessor to the LCCHP) in 1999:

- Tests on children age 6 to 72 months, inclusive, at the time of testing are included in data set.
- Tests for children residing within OU9 for less than 3 months are excluded from the data set.
- For capillary tests that are followed by a venipuncture test within 30 days, only the result from the confirmatory venipuncture test is retained in the data set.
- For children with more than one test result during the year, an arithmetic annual-average blood lead level (BLL) is computed.
- Annual-average BLLs are used to compute blood lead statistics by area.
- The statistic used to describe central tendency is the geometric mean.
- Ages assigned to each test result are the age at time of testing.
- Ages assigned to annual-average test results are the average of ages at each test that year.
- First-time tested children are those not previously tested by the Lake County blood lead program.

With respect to the use of capillary test results, described in the third bullet above, a slightly different procedure was adopted in 2002. Capillary test results are still excluded from the calculation of the individual, annual average blood lead levels, in favor of venipuncture results when the capillary test is confirmed by a venipuncture test within 30 days. However, other capillary test results, which are not followed within 30 days by a confirmatory venipuncture test, are used in calculating individual, annual average blood lead levels.

In addition, each year a statistical analysis of the blood lead data is performed to determine the distribution of the data, to allow calculation of appropriate statistical measures to describe and evaluate the available blood lead data. Statistical tests are used to determine whether the data fall into a normal distribution (i.e., the distribution of data can be represented by a symmetrical bell shaped curve when plotted) or non-normal (i.e., nonparametric) distribution. Once the distribution of the data is determined, statistics can be calculated to describe the central tendency of the data (the number that represents the center of the distribution) and to describe how the data deviate from this central value. This information is used to test hypotheses about whether the collected blood lead data indicate the RAOs established for the LCCHP have been met.

Biomonitoring data, such as blood lead values within a test population, often fall approximately into what is called a log-normal distribution, meaning the logarithms of the blood lead values (or log-transformed values) are approximately normally distributed. Statistical tests are conducted each year as part of the LCCHP annual report process to confirm the distribution of the blood lead dataset and to

determine the appropriate method to use to select test statistics to compare the program blood lead data to the program performance standards. For normal or lognormal distributions, a mean or geometric mean is used to calculate the central tendency value, and a standard deviation or geometric standard deviation is used to describe the dispersion from the mean. If the data fall into a non-normal distribution, a median is calculated and used as the central tendency value. The median is the point on the distribution of data where half of the values are above that number and half of the values are below it.

For each of the data sets compiled to describe community BLLs within OU9, or any subarea of OU9, a test for normality (Shapiro Wilks test for normality at 95% confidence level) was applied to determine the actual data distribution. In 2005, the blood lead data sets for Subareas A, B, C, D, and SU1 are log-normally distributed; Subareas E, F, and G displayed normal data distribution. The 2005 blood lead data sets for subarea H, OU9 and Lake County are non-normally distributed. The test results for all of the subarea data sets, as well as the combined data sets for OU9 and SU1 are included in Appendix C. Summary statistics for each subarea data set (median, geometric mean, geometric standard deviation, 95 percent upper confidence limit on mean and 25th, and 75th percentiles) are also included in Appendix C.

6.3 2005 Community Blood Lead Levels

Table 6-2 presents a summary of the blood lead monitoring results over the past three years for all children within the Site (OU9), all children within Statistical Unit 1 (SU1), and all children tested residing outside of the Site (Area H). Presented in the table are the number of children tested within each geographic area, the arithmetic mean or geometric mean BLL, the median, the standard deviation or geometric standard deviation (GSD), the number of children with annual-average BLLs between 10 and 14.9 μg/dL, and the number of children with a BLL above 15 μg/dL. The 2005 BLL data sets for Area H and OU9 were not normally distributed. For this reason, median values are presented for comparison of 2005, 2004, and 2003 BLL data. In both Tables 6-2 and 6-3 the geometric mean is presented when the data represented is log-normally distributed and the arithmetic mean (or average) is presented when the distribution of the data represented is either normal or not-normal (See Appendix C). The 2005 median BLL value for OU9 was 2.8 μg/dL (Table 6-2).

During 2005, no children who resided in OU9 had an annual-average BLL greater than or equal to 10 μg/dL and no children had an annual-average BLL above 15 μg/dL.

Table 6-2. Annual Blood Lead Monitoring Results (2003 – 2005)

	Comparison of Annual Blood Lead Statistics					
	N	Mean/Geo. Mean	Median	SD/GSD	n=10-14.9 µg/dL	n≥15 µg/dL
2005 – OU9	236	3.12*	2.8	1.79	0	0
2004 – OU9	261	3.98*	3.6	2.39	3	1
2003 – OU9	242	3.91*	3.3	2.53	5	1
2005 – SU1	114	3.01	3.0	1.74	0	0
2004 – SU1	128	4.46*	4.2	2.66	3	1
2003 – SU1	118	3.75	3.5	1.84	5	1
2005 - Area H	176	2.83*	2.4	1.87	3	0
2004 - Area H	154	3.05	3.1	2.44	2	1
2003 - Area H	145	3.09	3.0	1.78	2	0

* Blood lead data were non-normally distributed and therefore, a comparison of median values may be more appropriate. Mean values denoted with an asterisk in this table are the arithmetic mean. Please see Appendix C for more details.

Table 6-3 presents the number of children tested, mean or geometric mean BLL, median BLL, and number of children with an annual-average BLL greater than or equal to 10 µg/dL and less than 15 µg/dL, and number of children with an annual-average BLL greater than or equal to 15 µg/dL, broken down by subarea. The same subarea data are presented graphically, using box and whisker plots (showing 5th, 10th, 25th, 50th, 75th, 90th and 95th percentiles), on Figure 6-2 to allow for direct comparison of the distribution of BLLs in the various subareas.

Table 6-3. 2005 Blood Lead Statistics, by Area

Area	2005 Blood Lead Statistics by Area				
	N	Mean/Geo. Mean	Median	n=10-14.9 µg/dL	n≥15 µg/dL
A	32	2.89	2.95	0	0
B	24	2.64	2.7	0	0
C	69	2.18	2.3	0	0
D	55	3.30	3.2	0	0
E	3	2.63	3.0	0	0
F	33	2.59	3.7	0	0
G	20	2.51	2.35	0	0
X	0	--	--		

Table 6-3a. 2004 Blood Lead Statistics, by Area

Area	2004 Blood Lead Statistics by Area				
	N	Mean/Geo. Mean	Median	n=10-14.9 µg/dL	n≥15 µg/dL
A	32	4.13	3.8	1	0
B	20	3.32	3.4	0	1
C	84	3.54	3.35	0	0
D	72	4.77	4.85	2	0
E	5	2.94	2.7	0	0
F	35	3.11	2.95	0	0
G	13	2.55	2.7	0	0
X	0	--	--	--	--

Table 6-3b. 2003 Blood Lead Statistics, by Area

Area	2003 Blood Lead Statistics by Area				
	N	Mean/Geo. Mean	Median	n=10-14.9 µg/dL	n≥15 µg/dL
A	25	3.62	3.6	1	0
B	21	2.45	2.5	0	0
C	77	3.38	3.3	0	0
D	69	4.25	4.1	4	1
E	3	5.63	4.0	0	0
F	32	3.61	3.3	0	0
G	13	2.37	2.6	0	0
X	2	2.65	--	0	0

Participation in the program varied throughout the year. The number of participants increased during the months of May through September, as is shown in Figure 6-3. Figure 6-3 also shows that June, July, and August had the highest percentage of participation. The Health Department focused their outreach and recruitment efforts in the summer and fall because exposures to outdoor sources of lead are likely to be highest during the summer months, and BLLs are expected to be at their highest during late summer and early fall.

In addition to the participation of young children described above, 38 adult residents of Lake County had blood lead testing during 2005. The average Lake County blood lead level for adults was 2.37 µg/dL and the maximum was 26.63 µg/dL from subarea H. Included in the 38 adults tested were 31 pregnant women with an average BLL of 1.78 µg/dL and 7 nursing mothers with an average BLL of 4.99 µg/dL.

6.4 Comparison of Blood Lead Levels Among Groups

Several box and whisker plots were compiled to graphically display the BLLs for different groups of children residing within OU9 and allow for comparison among those groups. Plots were also prepared to depict this data by subarea or statistical unit. Only data sets with a minimum of five values were included on the box and whisker plots.

Figure 6-4 displays the BLLs for children residing within OU9 grouped by age in years. Figure 6-4a displays the BLLs for children grouped by age in years and by subarea. Another age comparison of BLLs is shown in Figure 6-5, which shows the distribution of BLLs grouped by subarea and statistical unit, with data displayed for two age groups; ages 0-35 months and 36-72 months old.

Figure 6-6 shows BLLs during months when children are more likely to be outside (June to October) compared with months when they are more likely to be inside (November to May). These data are presented for all of OU9 and for SU1 only.

A comparison of BLLs for children in the Medicaid program (n = 96) and children not in the Medicaid program (n = 140) in OU9 is shown on Figure 6-7. SU1 data, also presented on Figure 6-7, show 42 children were Medicaid participants and 72 were not. In 2005 the geometric means, median and 75^{th}, 90^{th}, and 95^{th} percentile values for the Medicaid participant's data were lower than those same values for Non-Medicaid participants. Prior to 2004 the geometric mean, and the data sets in general, were slightly higher for Medicaid participants when compared with non-Medicaid participants. These slight variations, or fluctuations, may indicate that Medicaid participation is not a demographic indicator that is strongly related to a child's potential lead exposure for this area.

Of the children participating in the blood lead program from OU9 in 2005; 174 were from homes where English is the primary language spoken and 62 were from homes where Spanish is the primary language spoken. Similarly, in SU1, 80 children tested were from homes where English is the primary language spoken and 34 were from homes where Spanish is the primary language spoken. A comparison of the distribution of OU9 and SU1 BLLs by Family's Primary Language is graphically presented in Figure 6-8. In 2005, the mean, median and 75^{th}, 90^{th} and 95^{th} percentile values were lower in Spanish-speaking participants, compared to English-speaking participants in both OU9 and SU1. This observation is similar to what was seen in 2004, but different than that observed in 2003, when the mean and data distribution were very similar for each of the groups in OU9, but in SU1 the mean for the Spanish speaking participants was slightly higher.

6.5 Relationship of Blood Lead Levels to Environmental Lead Concentrations

The relationship between observed BLLs and the lead concentrations in environmental media characterized through the LCCHP environmental investigation program are discussed in this section and graphically depicted in a number of figures. For these comparisons the first blood lead test result of each year was used for children residing at properties where the environmental test data of interest are also available (paired data). Because not all environmental media are tested at each property, the number of data points used in each comparison may vary. For each environmental medium tested, either a maximum lead concentration or a computed, property average lead concentration was used in these comparisons, as indicated on each figure.

Box and whisker plots presenting the distribution of first-test BLLs for groups of children, residing within OU9, categorized by ranges of property average 0 to 6-inch soil-lead concentration are presented as Figure 6-9. The three ranges of average soil-lead concentrations used to group the data are: less than 1,500 mg/kg (low); 1,500 to 3,500 mg/Kg (medium); and greater than 3,500 mg/Kg (high). Figure 6-9a presents the data using the 0 to 2-inch property average soil-lead values. These figures indicate that the median blood lead level and range of blood lead levels increase with higher soil lead levels.

Figures 6-10 through 6-15 present bi-variate plots for first-test BLLs and corresponding average or maximum lead concentrations in soil, paint, dust and water at the child's residence. Additional bi-variate plots were also prepared to present the data from Statistical Unit 1 for the same comparisons of first-test BLLs to lead levels in environmental media at the residences of tested children. The additional plots have been numbered, as referenced below, using an 'a' subscript for Statistical Unit 1 data. The following environmental lead results were used to prepare these plots:

- Average soil lead content computed using all results for soil from the 0 to 6 inch depth interval (Figures 6-10 and 6-10a) and the 0 to 2 inch depth interval (Figures 6-11 and 6-11a).
- Maximum lead content of paint in poor-condition (Figures 6-12 and 6-12a).
- Average main living area lead concentration in dust (Figures 6-13 and 6-13a,).
- Average lead concentration in tap water computed using results for samples collected after a 30-second flush of faucet/plumbing (Figure 6-14).
- Average lead concentration in tap water computed using results for samples collected after holding water in the plumbing for a 6 to 8-hour period (Figure 6-15).

A simple linear regression analysis was performed for each bi-variate plot to evaluate the correlation between each environmental variable and first-test BLLs in resident children. The linear regression equation and R^2 results for those analyses are included on the bi-variate plots. The R^2 value is the amount of variance in blood lead level explained by the environmental variable. For example, an R^2 value of 0.2 indicates that 20 percent of the BLL variance is explained by the variation in the environmental lead level plotted. None of the linear regression analyses performed for these data comparisons indicate good correlation (e.g., $R^2 > 0.50$) between blood lead levels and any one environmental media (R^2 values typically less than 0.06).

Children may be exposed to lead from many possible sources, including potential sources not investigated or addressed by the LCCHP. The Program does however, conduct detailed surveys with each family to characterize demographic information, family activities and occupations and information regarding other potential sources of lead exposure in their home. In addition to the environmental media investigated by the Program at a child's primary residence (soil, dust, paint, and water), other possible sources of exposure include: hobby and/or parents' work activities; cigarette smoke; the use of certain home remedies; certain types of glazed and clay pottery; foreign candy; exposure to all sources that may be encountered at day care, play areas, or other residences and locations visited by the child; and exposure that may occur prior to moving to the site, or from travel to other locations, including foreign countries. With this number of potential sources and the possibility that children are often exposed to multiple potential sources, it is difficult to determine, with any certainty, the dominant source, or sources, of lead contributing to an elevated blood lead level. As has been the case in the past, bi-variate plots of blood lead versus environmental lead data show that there is no predictable correlation or relationship between individual media lead concentrations and blood lead levels. Alternative data presentation techniques displaying the range of observed blood lead levels at varying ranges of lead concentrations in soil, as presented on Figures 6-9 and 6-9a, may however, support the hypothesis that higher environmental lead concentrations do represent a greater exposure risk.

6.6 Additional Data Evaluation

In response to a recommendation from the Work Group, additional data evaluation efforts were undertaken in 2005 to investigate concerns raised by the Independent Review Panel (IRP) in 2003, including the observation at the time that the calculated percentage of the participants with blood lead levels greater than 10 and 15 µg/dL (P10 and P15), respectively, had not significantly declined over time, particularly in Statistical Unit 1. As discussed in Section 11.1, a meeting was held in February 2006 to present and discuss the findings of this additional data evaluation effort. A Technical Memorandum

prepared to explain the purpose of this effort, document the data presented and evaluated, and to summarize the major findings is included as Appendix F to this Annual Report.

The bullets listed below summarize the major findings and conclusions of the additional data evaluation and the discussions at the meeting. It should be noted, however, that subsequent to the February 2006 data evaluation meeting the performance standards evaluation, performed as part of this Annual Report, revealed that the performance standards have been met for SU1.

- Since the time of the IRP's review in 2003, the P10 and P15 values for SU1 have declined and in fact are approaching levels established as the Performance Standards for the program that define achievement of the Program's Remedial Action Objectives.

- Central tendency indices of the blood lead data, including geometric mean, arithmetic mean, and median, continue to decline over time for all of OU9, SU1 and within individual areas of the Site.

- Additional data presented regarding community blood lead levels for 2000-2004 indicate that SU1 and in particular Area D continue to have the highest frequency of children with elevated blood lead levels within the site.

- As described in Appendix F, a number of bi-variate analyses and stratified statistical analyses were conducted to explore the relationship between blood lead levels and concentrations of lead in individual environmental media (soil, paint, dust, drinking water). These statistical tests show that there is no observable correlation or strong relationship between blood lead levels and the lead concentration in any one individual environmental medium. However, this does not mean that exposure sources such as lead-based paint or lead in soil or dust may not be an important exposure source in some cases, only that no one dominant factor was identified, based on the statistical tests applied, that accounts for elevated blood lead levels in area children. This lack of a demonstrable correlation may in part be due to a combined effect from many different variables and the inability of bi-variate analyses to account for multiple contributing factors simultaneously.

- Alternative data presentation techniques displaying the range of observed blood lead levels at varying ranges of lead concentrations in soil and paint do, however, show that the median blood lead level and range of blood lead levels tend to increase with higher soil and paint lead levels. This observation supports the hypothesis that higher environmental lead concentrations do represent a greater exposure risk.

- The data presented comparing the changes in blood lead levels of EBL children indicate a slightly greater average decrease in blood lead levels when a response action (such as paint abatement or soil remediation) is taken to address environmental media with lead concentrations above the trigger levels, compared to education alone.

- Overall, the data evaluation supports previous conclusions that lead in a variety of media (soil, paint, dust) contribute to EBLs in children in OU9, with no one dominant source identified.

Based on the data evaluation performed, the PSWG does not believe that any further evaluation or multi-variate analysis is warranted at this time.

6.7 Case Management Summary

During 2005, one child tested by the blood lead monitoring program and residing within the site for some part of the year, had at least one blood lead test result greater than or equal to 10 µg/dL at some time during 2005. The child's second test was less than 10 µg/dL and the average of the results is slightly less than 10 µg/dL. The child's BLL is declining, but will continue to be monitored. The child resides within the Site boundaries at the end of 2005. A time series plot of BLLs for Child 7426 is included in Appendix D. Also included in Appendix D are the time series plots for 5 children who had at least one BLL greater than or equal to 10 µg/dL at some time during 2004, were tested again in 2005, and who still live within the County. The child identification numbers presented on these plots have been changed from the actual identification numbers used in the database to maintain the privacy of program participants, however the number is the same from past reports.

Whenever a child with an elevated blood lead level is identified, the LCHD conducts individual counseling with the family and follows the procedures outlined in the Work Plan, based on the CDC guideline, to address the child's exposure to lead. As part of this counseling, all available information gathered by the program, including demographics, survey information, and environmental information is evaluated and used in developing case management activities for participating families. When the child resides within the site, this includes a referral of the family to the LCCHP environmental testing program to evaluate and address potential sources of lead exposure.

In addition to the counseling and case management services provided through the LCHD, the following types of additional actions were performed by the LCCHP for the one first-time tested child with an elevated blood lead test value during 2005:

- Prior to moving, an environmental investigation was conducted and remediation completed at this child's former home. Soil sampling was also conducted at the child's current residence and the results do not exceed the program's trigger criteria. At this time the family has declined to have other media investigated, but will continue to have their child's blood lead tested.

Two children had an initial capillary test greater than 10 µg/dL in 2005, however, the confirmation venous samples for both children were less than 10 µg/dL and the blood lead levels have continued to decline in subsequent tests. Both children were referred to the environmental program by the LCHD for services. The LCCHP will continue to encourage routine testing of all children who had an elevated blood lead test.

None of the children who entered the blood lead monitoring program in previous years had a blood lead test result greater than or equal to 10 µg/dL in 2005. Of the six children in 2004 who had elevated BLLs or an elevated blood lead test, the program continued to follow five that remained in the County. One child moved away in 2004. As mentioned previously, time-series plots of BLLs for the five children remaining in the County are presented in Appendix D. Two of the remaining five children had a BLL greater than 10 µg/dL at the time of their last test in 2004, but both tested below 10 µg/dL in 2005. The BLLs of the three other children had dropped below 10 µg/dL by the end of 2004. All three of these children were tested at least one time in 2005 and all of the children's tests remained below 10 µg/dL. All five children continue to live within the Site boundaries. The LCHD continues to provide services as outlined in the Work Plan.

7.0 COORDINATION WITH INSTITUTIONAL CONTROL PROGRAM

Although the performance standards have been met, the remedy will not be considered complete until appropriate institutional controls are in place. A citizen workgroup has been convened to consider alternatives and options to address institutional control requirements related to the Superfund Site. The local governments will also be working with the EPA and the State of Colorado to designate an acceptable repository, or disposal site, for contaminated soils generated from operations and maintenance or other post-remediation activities within the Superfund Site.

8.0 PROBLEMS ENCOUNTERED AND PROBLEM RESOLUTION

This section presents an itemization of implementation problems or management issues and the processes used or actions taken to resolve them.

- Asarco filed for bankruptcy at the beginning of August 2005. This temporarily suspended the funding for the LCCHP ceasing all environmental activities including sampling and remediation. The EPA was able to secure interim funding and continued operations of the Kids First Program in October 2005.

  After the Program began operating again, activities in October and November focused on soil sampling and the completion of soil response actions. At this time, funding is limited by statute to response actions for soil, exterior paint and dust. It is uncertain when funding will be available for interior paint and water responses. EPA is working with Asarco and the bankruptcy court to have additional funding made available. The program notified all affected property owners and residents of the issues. If and when funding becomes available for interior paint and water response actions, scheduling of this work will be prioritized by the LCCHP Work Group to address properties with young children first, then in the order in which properties entered the program. Currently, there are 13 properties waiting for interior paint or water response actions, based on recommendations made by the Work Group.

9.0 MODIFICATIONS TO WORK PLAN OR OTHER LCCHP PROCEDURES

No modifications to the Work Plan were recommended by the Work Group in 2005.

10.0 PERFORMANCE STANDARDS EVALUATION

The performance of the LCCHP in meeting the remedial action objectives established by EPA for OU9 was evaluated using data collected by the program during the years 2003, 2004 and 2005. Performance standards, including the specific methods to be used for measuring performance, were finalized and documented in a report entitled Methods and Standards for Evaluating the Performance of the Lake County Community Health Program (PSWG, 2002). A detailed evaluation of LCCHP performance relative to these standards is included with this Annual Report as Appendix E.

As stated in Appendix E and in accordance with the Performance Standards document, OU9 was subdivided into two areas that are, described as Statistical Units for the purposes of evaluating the program's performance. Statistical Unit 1 includes the previously defined subareas A, B, D and E, or the areas within the City of Leadville and Stringtown. Statistical Unit 2 includes the subareas C, F and G, to the areas of Westpark, Lake Fork Mobile Home Park and other neighborhoods within the site. A summary of the evaluation results for each Statistical Unit is provided in Table 10-1.

Table 10-1: Performance Evaluation Results, 2003-2005

Performance Standard	Statistical Unit 1 (A, B, D, E)	Standard Met?	Statistical Unit 2 (C, F, G)	Standard Met?
1. The total number of participants is at least 180 and at least 50% of new eligible children participate on average for a 3-yr period.	360 participants over last 3 years; >90% of estimated newly eligible children (site wide) for each of 3 years	yes	Standard met in 2002	yes
2. For a 3-yr period, the calculated P10 value < 5% and the calculated P15 value < 1%; no individual P10 value exceeding 8%.	3-yr P10 = 4.2%, P15 = 0.8% 2003 P10 = 6.0%, P15 = 1.4% 2004 P10 = 4.0%, P15 = 0.3% 2005 P10 = 1.5%, P15 = 0.2%	yes	Standard met in 2002	yes
3. For a 3-yr period, the probability that the true P10 exceeds 7% is less than 5% and the probability that the true P15 exceeds 2% is less than 5%.	Probability that the true P10 exceeds 7% is less than 1% Probability that the true P15 exceeds 2% is less than 1%	yes	Standard met in 2002	yes
4. For children participating over the last 3 yrs, the proportion of associated soil lead values greater than the 70th percentile value for the entire Statistical Unit is not significantly lower than 30%.	28% of soil lead values for participating children are greater than the 70th percentile for soil lead values determined to date in Statistical Unit 1.	yes	Standard met in 2002	yes
Final Decision	**Statistical Unit 1 has met all performance standards.**		**Statistical unit 2 met all performance standards at the end of 2002; 2003 results confirm no increasing trend in P10 and P15 values.**	

As indicated by the information summarized in Table 10-1, the performance standards have been achieved within both Statistical Unit 1 (subareas A, B, D and E; City of Leadville and Stringtown areas) and Statistical Unit 2 (subareas C, F and G; outlying neighborhoods around Leadville and Lake Fork Mobile Home Park).

11.0 RECOMMENDATIONS OR COMMENTS FROM LCCHP WORK GROUP

11.1 Response to 2004 Recommendations or Comments

One recommendation from the LCCHP Work Group was provided during the preparation of the 2004 Annual Report. The comment is listed below (*in italics*) and progress in addressing this item during 2005 is discussed below.

1. *As discussed in the 2004 Annual Report under Data Management and Statistical Analysis, the Work Group anticipates tasking the Performance Standards Working Group with developing a strategy to investigate the participants with blood lead levels greater than 10 and 15 µg/dL (P10 and P15). The Performance Standards Working Group will develop a technical memorandum from their discussions for distribution. A summary of the conclusions reached as a result of this effort will also be included in the 2005 Annual Report. Analyses of blood lead data presented in the 2004 Annual Report will be used by the Performance Standards Working Group as a starting point for discussion of a plan for additional data analyses to address previous comments from the Independent Panel Review.*

   The meeting was scheduled in August 2005, but due to Asarco's bankruptcy was reschedule to December 2005. Due to weather conditions the meeting was again cancelled and rescheduled in February 2006. At the meeting a number of additional data evaluations were presented and discussed. The Performance Standards Working Group has developed a technical memorandum, summarizing the presentation, discussions and conclusions from this meeting, which is included as Appendix F.

11.2 2005 Recommendations or Comments

Recommendations or comments provided by the LCCHP Work Group during 2005 and in the preparation of this Annual Report for 2005 include the following:

1. Although the Performance Standards have been met, there are a number of properties, previously investigated by the Program, where the Work Group has recommended a response action to address potential lead exposure risks. The Work Group recommends that the Program complete all pending response actions, where owner access can be obtained. In addition, the EPA decided to provide a 60-day notification period to allow residents and property owners one final opportunity to have their properties investigated for lead. However, initiation and completion of investigations and remediations are dependent on when the LCCHP trust fund can be accessed. It is possible that delays could be experienced since this trust fund has been impacted by Asarco's bankruptcy.

2. The Work Group requested to review the list of properties pending remediation at each Work Group meeting to discuss priorities and to designate any additional priorities after those listed in the Work Plan. The Work Group developed a priority list for properties pending remediation, and received an updated list at subsequent Work Group meetings.

3. The County requested that the Work Group meetings be open to the public. The Work Group agreed, although, the meetings have been spilt into two parts, one part open to the public to discuss environmental data by property number and the other which will remain closed to discuss confidential medical information.

4. The County recommended adding an additional soil remediation contractor in 2006 to increase the number of soil remediations being conducted each year.

12.0 REFERENCES

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FIGURES